

REMARKS

The present Amendment amends claims 1 and 3 and leaves claims 4-6 and 8 unchanged. Therefore, the present application has pending claims 1, 3-6 and 8.

Claim 3 stands rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. Various amendments were made throughout claim 3 to bring it into conformity with the requirements of 35 USC §112, second paragraph. Therefore, Applicants submit that this rejection is overcome and should be withdrawn.

Specifically, amendments were made throughout claim 3 to correct the informalities noted by the Examiner in paragraph 3 of the Office Action.

The Examiner's cooperation is respectfully requested to contact Applicants' Attorney by telephone should any further indefinite matters be discovered so that appropriate amendments may be made.

Claims 1, 5, 6 and 8 stand rejected under 35 USC §103(a) as being unpatentable over Ueda (U.S. Patent No. 5,359,600) in view of Kato (U.S. Patent No. 6,529,523); and claims 3 and 4 stand rejected under 35 USC §103(a) as being unpatentable over Ueda in view of Kato and further in view of Mano (U.S. Patent No. 6,012,151). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1, 3-6 and 8 are not taught or suggested by Ueda, Kato or Mano whether taken individually or in combination with each other as suggested by the Examiner.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to the claims so as to more clearly describe features of the present invention. Particularly, amendments were made to the claims to more clearly recite that the present invention is directed to a communication apparatus for interconnecting plural kinds of communication networks including an asynchronous transfer mode (ATM) network to transfer information between the different kinds of communication networks. These networks could, for example, be an ATM communication network, a synchronous transfer mode (STM) communication network or an internet protocol (IP) communication network, each performing communication procedures using different signal formats.

Thus, the communication apparatus of the present invention includes plural kinds of first interfaces for converting plural kinds of control signals or communication signals having different signal formats from plural kinds of communication networks, except the ATM network, to ATM cells, a second interface for receiving an ATM cell to which a control signal or communication signal is inserted from the ATM network, an ATM switch having a plurality of input ports and a plurality of output ports for outputting an ATM cell received by anyone of the input ports from the first and second interfaces to anyone of a plurality of output ports based on header information of the ATM cell, plural kinds of signal processors, connected to the ATM switch, for converting a signal output from the first and second interfaces to a signal format or protocol used by each of the plural kinds of communication networks and a control part for receiving the ATM cell, which is output from one of the plural kinds of

signal processors and to which a control signal is inserted through the ATM switch and performing a necessary processing among plural kinds of processing and outputs the ATM cell the ATM switch. According to the present invention, each of the first and second interfaces rewrites a destination of the received signal so that the received signal is transmitted to one of the plural kinds of signal processors based on the kind of received signal.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention now more clearly recited in the claims are not taught or suggested by Ueda, Kato or Mano whether taken individually or in combination with each other as suggested by the Examiner.

Ueda teaches a monitoring technique for an ATM switching system that monitors the quality of the switch without degrading its throughput (Col. 1, line 31 to line 34). In Ueda a cell is inserted in an overhead space area after the end of an STM-N signal, and the quality of the switch is monitored using the cell (Col. 1, line 34 to line 63).

Thus, Ueda proposes apparatus having an object to provide a technique for monitoring a switch in an ATM switching system without lowering the throughput. However, the object of the present invention is to provide a switching system, which can form connections between plural kinds of communication networks (ATM communication network, STM communication network, IP communication network) having different signal formats and communication procedures.

Although Ueda discloses an ATM self routing switch system, a plurality of incoming trunk interfaces (11) for converting an STM signal to an ATM cell, an ATM switch (15) for switching the ATM cell from the incoming trunk interfaces, and a plurality of outgoing trunk interfaces (16) for receiving the ATM cell output from the ATM switch and convert it to a STM signal, there is no teaching or suggestion of the above described features of the present invention as now recited in the claims.

According to the switching system and control method of the invention, it is possible to provide a switching system and a control method which can form connections between plural kinds of communication networks (ATM communication network, STM communication network, IP communication network) different in signal format and communication procedure, that will produce the excellent advantage peculiar to the present invention, not known from Ueda.

Therefore, it is quite clear that Ueda fails to teach or suggest plural kinds of first interfaces for converting plural kinds of control signals or communication signals having different signal formats from plural kinds of communication networks, except the ATM network to ATM cells as recited in the claims.

Further, Ueda fails to teach or suggest plural kinds of signal processors, connected to the ATM switching for converting a signal output from first and second interfaces to a signal format or protocol used by each of plural kinds of communication networks as recited in the claims.

Still further, Ueda fails to teach or suggest a control part for receiving the ATM cell, which is the output of one of the plural kinds of signal processors and to which a control signal is inserted through the ATM switch, and performing a necessary

processing among plural kinds of processings to output the ATM cell to the ATM switch as recited in the claims.

Still further yet, Ueda fails to teach or suggest that each of the first and second interfaces rewrites a destination of the received signal so that the received signal is transmitted to one of the plural kinds of signal processors based on the kind of received signal as recited in the claims.

The above noted deficiencies of Ueda are not supplied by any of the other references of record particularly Kato and Mano. Therefore, combining the teachings of Ueda with one or more of Kato and Mano fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

The object of Kato is to realize a mixed network of ATM and STM networks, absorbing fluctuation of cells in the ATM network, controlling the band between STM switches depending on the traffic of the STM, and deciding whether or not to accept an STM call (Col. 2, line 31 to line 53).

According to Kato the above object is achieved by providing a circuit for mutually converting a time division multiplexed frame of the STM network and cells of the ATM network, means for controlling the time of reading a cell out of a cell buffer in the STM switch, providing means for monitoring the traffic between the STM switches, means for controlling exclusive band (PVC band) between the STM switches depending on the traffic, and means for deciding whether or not to accept a call for a call setting request from the STM switch in a band management device of an ATM switch (Col. 2, line 54 to col. 4, line 33).

On the other hand, the object of the present invention is to provide a switching system and a control method thereof that can form connections between plural kinds of communication networks, for example, an ATM communication network, a STM communication network, or an IP communication network that communicate using different signal formats and communication procedures. These features of the present invention are clearly not taught or suggested by Kato.

Kato discloses, in Fig. 13, an ATM switching system including a plurality of line interfaces (91a-91n), each of which is connected with one of the STM switches (12A-12C) and an ATM terminal (13); a plurality of UPC controllers (92a-92n), each of which is connected with one of the line interfaces; an ATM-SW(94) connected with the UPC controllers; and a connection admission control unit (93) connected with the UPC controllers and the ATM-SW.

The line interface as described in Kato may be one of plural kinds of interfaces as it is an interface for a STM switch or an ATM terminal, but the received signal format is a cell. However, in the present invention the signal format which is received by the plural kinds of first interfaces is not a cell, but it depends on the kind of communication network connected to the interface. Such features are clearly not taught or suggested by Kato.

Accordingly, as is known a signal format and a communication procedure, such as protocol, are different according to the kind of the communication network. Thus, in claim 1 there is a limitation regarding plural kinds of signal processors connected to the subsequent stage of the ATM switch for converting a signal output from the interfaces to the signal format or protocol used by each of the plural kinds of

communication networks. Further, in the present invention, each of the first and second interfaces identifies the kind of received signal, and rewrites a destination so that the received signal is transmitted to one of the plural kinds of the signal processors based on the kind of the received signal. Still further, the present invention includes a control part for receiving the ATM cell, which is the output of one of the plural kinds of signal processors and to which a control signal is inserted through the ATM switch, and performs a necessary processing among plural kinds of processings to output the ATM cell to the ATM switch. None of the above described features of the present invention are not taught or suggested by Kato.

Therefore, it is quite clear that Kato fails to teach or suggest plural kinds of first interfaces for converting plural kinds of control signals or communication signals having different signal formats from plural kinds of communication networks, except the ATM network to ATM cells as recited in the claims.

Further, Kato fails to teach or suggest plural kinds of signal processors, connected to the ATM switching for converting a signal output from first and second interfaces to a signal format or protocol used by each of plural kinds of communication networks as recited in the claims.

Still further, Kato fails to teach or suggest a control part for receiving the ATM cell, which is the output of one of the plural kinds of signal processors and to which a control signal is inserted through the ATM switch, and performing a necessary processing among plural kinds of processings to output the ATM cell to the ATM switch as recited in the claims.

Still further yet, Kato fails to teach or suggest that each of the first and second interfaces rewrites a destination of the received signal so that the received signal is transmitted to one of the plural kinds of signal processors based on the kind of received signal as recited in the claims.

Thus, as is quite clear from the above, the features of the present invention as recited in the claims are not taught or suggested by Kato. Therefore, combining the teachings of Ueda and Kato in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1, 5, 6 and 8 as being unpatentable over Ueda in view of Kato is respectfully requested.

The above noted deficiencies of both Ueda and Kato are not supplied by Mano. The Examiner merely relies on Mano for an alleged teaching of a plurality of processors used for improving the redundancy-reliability and efficiency in performing the distributed load processing. These alleged teachings of Mano do not supply any of the deficiencies noted above with respect to both Ueda and Kato relative to the features of the present invention as recited in the claims.

Thus, combining the teachings of Ueda, Kato and Mano in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Therefore, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 3 and 4 as being unpatentable over Ueda in view Kato and Mano is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1, 3-6 and 8.

In view of the foregoing amendments and remarks, Applicants submit that claims 1, 3-6 and 8 are in condition for allowance. Accordingly, early allowance of claims 1, 3-6 and 8 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (572.38256X00).

Respectfully submitted,

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